

Attorney Docket No.: F7757(V)
Serial No.: 10/583,680
Filed: June 19, 2006
Confirmation No.: 4492

REMARKS

Amendments to the Claims

Claim 1, 6, 7 and 8 were amended without prejudice and new claims 9 and 10 were introduced to further clarify the subject matter being claimed and to recite preferred embodiments of applicants' invention that are more clearly differentiated from the prior art.

Amended claim 1 specifies that applicants' invention relates to a *method to reduce water and/or flavour migration from ingredients of food products* by the preparation of an edible barrier for water and/or flavour and/or lipid transport in ingredients of the food product, wherein a ferulyolated compound is at least partly oxidized after applying it to said ingredients of said food product. This amendment more clearly links the subject matter recited in claim 1 with the overall objective of the invention as disclosed on page 1, lines 20-21 and in the embodiments disclosed in Examples 2 and 3.

Amended claim 6 specifies that the oxidation recited in claim 5 is carried out *in situ* by an enzyme or enzymatic system which is endogenously present in the ingredient of the food product on which the edible barrier is formed as disclosed on page 5 , lines 25-32.

Amended claim 7 specifies a food product that comprises a leaking ingredient, said leaking ingredient covered by the barrier made according to the process of claim 1. (Page 6, line 30 to page 7, line 4)

Amended claim 8 specifies that the leaking ingredient recited in claim 7 is selected from the group consisting of vegetables, fruit, bread and fish. (Page 6, line 30 to page 7, line 4)

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New claim 9 specifies that the oxidation includes contact of the ferulyolated compound with hydrogen peroxide that is not generated in-situ as is disclosed on page 6, line 26 and in examples 1 and 3.

New claim 10 specifies that the food product recited in claim 7 further comprises bread that is not covered by an edible barrier and wherein the edible barrier covering the leaking ingredient reduces the transfer of water and or flavor to the bread as disclosed in Examples 2 and 3.

New claim 11 specifies that the leaking ingredient recited in claim 9 is tomato or salmon as disclosed in Examples 2 and 3.

Claim 3 is hereby canceled without prejudice.

Claim Rejections – 35 USC § 112

Claims 1-8 were rejected under 35 USC §112, second paragraph, as being indefinite because the Examiner asserted that the compound being claimed in dependent claim 3 does contain any ferulic acid. Applicants have canceled claim 3 thereby rendering moot the 112 rejection.

Claim Rejections – 35 USC § 102

Claims 1, 2,5, 7, and 8 were rejected under 35U.S.C. 102(b) as being anticipated by Fitchett (U.S. patent publication 2002/0028197). Applicants respectfully request the Examiner's reconsideration in view of above amendments and following remarks.

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Fitchett relates to "hemicellulose- based gels and viscous media, to processes for their production, to products containing such gels and/or viscous media and to various applications thereof. In particular, the present invention relates to an improved method for performing oxidative gelation of hemicelluloses which avoids the need for the addition of hydrogen peroxide". (page 1, [0001])

Regarding Claim 1

In the Office Action mailed March 4, 2009, the Examiner asserted (page 3- item 7) that Fitchett teaches "and edible barrier [75] wherein a sugar beet pectin is at least partly oxidized by peroxidase after applying it to a food product ([15], [17], [18], [71] and [75]; the ungelled composition can be sprayed onto the surface of the substrate which, according to [75] could be a food such as pickles, after which the gel is formed by oxidation reaction". Applicants respectfully disagree.

Paragraph 75 of Fitchett reads in its entirety:

"The materials listed above also find application as a foodstuff, dietary fibre source, food ingredient, additive, lubricant, supplement or food dressing. Such products are preferably selected from crumb, alginate replacer, cottage cheeses, aerosol toppings, frozen yoghurt, milk shakes, ice cream, low calorie products such as dressings and jellies, batters, cake mixes, frozen chips, binders, gravies, pastas, noodles, doughs, pizza toppings, sauces, mayonnaise, jam, preserve, pickles, relish, fruit drinks, a clouding agent in drinks, syrups, toppings and confectionary (e.g. soft centres) petfood (wherein the gel e.g. acts as a binder), a flavour delivery agent, a canning gel, fat replacer (e.g. comprising macerated gel), a coating, a glaze, a bait, a binder in meat and meat analogue products (for example vegetarian products), an

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edible adhesive, a gelatin replacer or dairy product or ingredient (e.g. a yoghurt supplement)." [0075]

Applicants' submit that the above disclosure does not directly and unambiguously teach applicants' method of reducing water and/or flavor migration from ingredients in a food product by forming an edible barrier on an ingredient (e.g., "leaking" ingredients such as tomato slices) of the food product wherein a feruloylated compound is at least partly oxidized after applying it to the ingredient of the food product.

Fitchett discloses in [27] and [45] that sugar beet pectin and pulp may be used and in [75] that this material can be used in a coating and in jams, preserves pickles and relish. However, there is no disclosure of forming an edible barrier on ingredients of foods in a single embodiment disclosed in Fitchett: the examples 1-6 only provide preparation methods for gels, not for edible barriers on a food product. Thus, Fitchett does not teach every aspect of applicants' claimed invention as required for anticipation under 102(b) [MPEP 706.02].

Regarding Claims 7 – 11

Claims 7-11 are even further removed from the teachings of Fitchett because they contain additional elements not disclosed by Fitchett.

Fitchett does not disclose a food product comprising a leaking ingredient (e.g. vegetables such as tomato or fish such as salmon) which is covered by the barrier made according applicants' process wherein the food product can include a bread (e.g. sliced tomato in a sandwich). Claims 7-8 and 10-11

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Applicants' claim 9 recites the process according to claim 1, wherein the oxidation includes contact of the ferulyolated compound with hydrogen peroxide that is not generated in-situ while Fitchett specifically teaches an "improved method for performing oxidative gelation of hemicelluloses which avoids the need for the addition of hydrogen peroxide.

Claim Rejections – 35 USC § 103

Claims 3 and 4 were rejected under 35 USC 35 §103(a) as being unpatentable over Fitchett as applied to claim 1 above. Applicants respectfully request that the Examiner reconsiders and withdraws the 103(a) rejection in view of the above amendments and following remarks.

Claim 3 has been canceled

The Examiner asserted on page 5, item 15 of the Office Action that since 2 to 1,500 micrometers is a very broad range that the "film disclosed by Fritchett could be readily selected by the skilled artisan. The Examiner concluded that it would have therefore been obvious to a person skilled in the art at the time of invention to have made a film with a thickness in the claimed range". Applicants' respectfully disagree.

The objective of the present application is to prevent water and/or flavour migration from ingredients of food products (page 1 lines 20-21). As discussed above, Fitchett does not consider the problem of water/flavor migration between component ingredients in a food product and thus does not teach an edible barrier for the prevention of migration of water and/or flavour from ingredients of a food product. There is no guidance provided in the specification or examples of suitable conditions for forming an edible barrier to achieve this goal. The examples disclosed by Fitchett

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(Examples 1-6) only provide preparation methods for gels, not for edible barriers on an ingredient of food product nor test methods to assess their suitability.

Absent any teaching or suggestion of the use of an edible barrier to reduce the migration of water and/or flavour from ingredients of a food product and the conditions under which feruloylated polymers should be prepared for water and/or flavour and/or lipid transport, Fritchett can not present a *prima facie* case of obviousness over claim 4.

Claim 6 was rejected under 35 USC 35 §103(a) as being unpatentable over Fritchett as applied to claim 1 above, in view of Krochta (U.S. 5,019,403) and further in view of Rombouts (U.S. 4,672,034). Applicants respectfully request the Examiner to reconsider and withdraw the 103(a) rejection in view of the above amendments and following remarks

Fritchett has been discussed above.

Krochta discloses a "method for coating substrates, including high moisture substrates and substrates having high moisture at the surface, with emulsions or suspensions of a water-soluble protein material and hydrophobic material. By adjusting the pH of the protein material in the emulsion or suspension to its isoelectric point in situ, that is, when the emulsion or suspension is in contact with the substrate, the protective properties of the resulting film are improved". (Abstract – emphasis added)

Krochta is silent regarding the suitability of any other types of coating materials and to the contrary states that water-soluble high-polymer hydrophilic materials such as proteins and polysaccharides adhere to such moist surfaces but offer little resistance to moisture loss from the intended products (column 7, lines 13-17).

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Rombouts discloses "beet pectin crosslinked with an oxidizing system containing an oxidizing agent and an enzyme such as peroxidase that uses the oxidizing agent as a substrate. The crosslinked beet pectin is useful as a thickener or gelling agent in food, cosmetic and pharmaceutical products". Abstract

The Examiner admitted that "Fitchett does not teach that the oxidation is carried out *in situ* by an enzyme or enzymatic system with is present in the food." (Office Action page 5, item 16)

The Examiner relied on Krochta for allegedly teaching "creating an edible barrier on the surface of high moisture substrates (column 4, lines 1-26) wherein the coating interacts with the substrate to create the moisture barrier (column 6, lines 10-30)." (Office Action page 5, Item 17)

The Examiner relied on Rambouts for allegedly teaching "the formation of a gel by oxidative crosslinking of sugar beet pectin (column 2, lines 11-13) and that peroxidises may be of vegetable origin (column 3, line 14). (Office Action page 5, item 18)

The Examiner held that "it would have been obvious to a person skilled in the art at the time of the invention to have modified the substrate-surface gel formation of Fitchett with the substrate interaction of Krochta and the vegetable enzyme source of Rambouts". The Examiner asserted that the motivation to combine these teachings would have been to create an edible moisture barrier on the surface of a foodstuff as taught by Krochta (col 6 lines 60-65). Applicants' respectfully disagree with the Examiners' analysis.

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It is well held that on the issue of obviousness, the combined teaching of the prior art as a whole must be considered. Specifically "It is impermissible within the framework of 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such references fairly suggest to one of ordinary skill in the art" (EWP Corp v. Reliance Universal, Inc 755 F.2d at 907 – see also Bausch & Lomb, Inc v. Barnes-Hind/Hydrcurve, Inc 796 F.2d 44, 448-49 (Fed Cir. 1986).

To derive applicants' invention in the manner asserted by the Examiner, a person of ordinary skill in the art would have had to first completely ignore the key teaching of Krochta and not use claimed elements of the coating method disclosed therein: namely, of constructing moisture barriers comprising proteins in combination with hydrophobic materials like waxes by causing rearrangement of the protein at its isoelectric point. This is a completely different situation than occurs with ferulyolated compounds wherein chemical bonds are formed due to the oxidation of the enzyme. There is no basis in Krochta or Fitchett to indicate that the same principle would also apply to edible barriers applied to ingredients of food products by ferulyolated compounds.

Applicants' claim further requires that the oxidation is carried out *in situ* by an enzyme or enzymatic system which is endogenously present in the ingredient of the food product on which the edible barrier is formed. Citing column 3, line 14, the Examiner implied that this limitation is taught by Rambouts because Rabmout teaches that the "peroxidase can be from a vegetable enzyme source" Rambout, in point of fact, specifically teaches at column 3, lines 14-20 that

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"The peroxidase can be of animal or vegetable origin; advantageously, type I horseradish peroxidase, sold by SIGMA (U.S.A.), is used; it can either be dissolved in the aqueous solution or coupled to an insoluble carrier which will be brought into contact with the reaction medium, in a manner known per se for enzymatic reactions. Emphasis added.

Thus, Rambout specifically teaches the use of a external or exogenous peroxidise (e.g. a horseradish peroxidise from Sigma chemicals).

Thus, when Rambout is considered as a whole, this reference does not disclose the limitation recited in applicants' claim 6 "that the oxidation is carried out in situ by an enzyme or enzymatic system which is endogenously present in the ingredient of the food product on which the edible barrier is formed".

Applicants submit that the Examiner has picked and chosen elements from Krochta, Fitch and Rambout using the knowledge gained from applicants' disclosure as a blueprint in an attempt to reconstruct their claimed invention from isolated pieces of prior art. This approach contravenes the statutory mandate of §103 which requires considering the invention and prior art as a whole and judging obviousness at the point in time when the invention was made.

Furthermore, even in the unlikely event the references were combined, the combination would not have taught all of the claim limitations recited in applicants' claim 6, namely that "the oxidation is carried out in situ by an enzyme or enzymatic system which is endogenously present in the ingredient of the food product on which the edible barrier is formed".

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To qualify as a 103(a) reference "The prior art reference, or combination of references, must teach or suggest all of the claim limitations (MPEP §2143). In addition to providing at least a suggestion of all the claim limitations, both the suggestion and the reasonable expectation of success must be found in the prior art references, not in Appellant's disclosure" (See *In re Vaeck*, 20 U.S.P.Q.2d 1438, 947 F.2d 448 (Fed Cir. 1991).

Absent any teaching or suggestion, either explicitly or implicitly that oxidation is carried out *in situ* by an enzyme or enzymatic system which is endogenously present in the ingredient of the food product on which the edible barrier is formed, the combination of Fitchett, Krochta and Rambouts can not present a *prima facie* case of obviousness over claim 6.

In view of the foregoing amendment and remarks, applicants respectfully request that the application be allowed to issue.

If a telephone conversation would be of assistance, Applicant's undersigned agent invites the Examiner to telephone at the number provided.

Respectfully submitted,



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